



Towards Sustainable Urbanism

This editorial is based on [“Fires in Rajkot and Delhi: To get safer cities, we must demand them”](#) which was published in The Indian Express on 28/05/2024. The article brings into picture the rise of India’s gaming sector and challenges associated with it.

For Prelims: [Urban Expansion and Development](#), [Municipal Corporations](#), [74th Constitutional Amendment Act, 1992](#), [World Air Quality Report 2023](#), [Urban heat island effect](#), [Urban fires](#), [Urban flooding](#), [Smart Cities](#), [AMRUT Mission](#), [Swachh Bharat Mission-Urban](#), [Pradhan Mantri Awas Yojana-Urban](#), [Aspirational District Programme](#)

For Mains: Major Challenges Related to Urban Spaces in India, Framework Related to Urban Governance in India

India's [urban landscape](#) is undergoing a period of transformative growth. Fueled by economic dynamism, cities across the nation are witnessing a surge in development. However, this rapid expansion has ignited a critical debate about the **quality and sustainability of urban spaces**.

Recent Incidents such as the collapse of oversized hoardings in **Ghatkopar and Pune**, a boiler blast at a chemical factory in **Dombivli**, a fire outbreak in **Rajkot’s Game Zone**, and an oxygen cylinder blast in a **New Delhi** pediatric hospital highlight ongoing safety concerns.

Therefore, a nuanced approach to urban planning in India, advocating for a balance between **economic development, safety, and the well-being** of citizens is the need of the hour.

What is the Framework in India Related to Urban Governance?

- **Institutions:**
 - **Ministry of Housing and Urban Affairs (MoHUA):** Formulates national policies and oversees central government schemes related to urban development.
 - **State Departments of Urban Development:** Implement central government policies and enact state-specific urban development regulations.
 - **Municipal Corporations/Municipalities:** They are responsible for **local-level planning**, development control, and service delivery within their jurisdictions.
 - **Urban Development Authorities (UDAs):** Special agencies established for development of specific urban areas or projects.
- **Constitutional and Legal Frameworks:**
 - **Constitution of India (Articles 243Q, 243W):** Empowers local governments (Municipalities) for urban planning and development within their jurisdictions.
 - **74th Constitutional Amendment Act, 1992:** Provided constitutional status to urban local bodies and added Part IX-A to the Constitution.

What are the Major Challenges Related to Urban Spaces in India?

- **Inadequate Housing and Slum Proliferation:** According to the **Ministry of Housing and Urban Affairs**, the urban housing shortage in India was around 18.78 million units between 2012-27, with over **65 million** people living in slums or informal settlements.
- **Air Pollution and Environmental Degradation:** Urban areas in India are grappling with severe air pollution levels, primarily due to vehicular emissions, industrial activities, and construction projects.
 - **Example:** According to the [World Air Quality Report 2023](#), **9 of the top 10** most polluted cities are in India.
- **Traffic Congestion and Mobility Challenges:** Rapid urbanization and the influx of private vehicles have led to severe [traffic congestion](#), increasing commute times and hampering productivity.
 - **Example:** In Bengaluru, the average traffic speed during peak hours is estimated to be around 18 km/h, resulting in significant economic losses due to lost productivity and fuel wastage.
- **Inadequate Solid Waste Management:** Indian cities struggle with the management of [solid waste](#), leading to piling garbage and health hazards.
 - Example: According to the Central Pollution Control Board, Indian cities generate approximately **62 million tons** of municipal solid waste annually, with only around **20% of it being processed or treated properly**.
- **Issue of Cybersecurity and Resilient Digital Infrastructure:** With the increasing digitalization in major urban spaces, [digital threats](#) are on rise and building resilient digital infrastructure is a critical issue.
 - The ransomware attack on **AIIMS Delhi** in 2022, highlights the vulnerability of urban digital systems.
- **Water Scarcity and Inadequate Water Management:** Many cities face [acute water shortages](#) due to rapid urbanization, population growth, and depleting groundwater levels.
 - **Example:** Chennai faced a severe water crisis in 2019, with residents relying on water tankers and desalination plants. Also, [the recent water crisis in Bengaluru](#) highlights the depth of the issue.
- **Urban Heat Island Effect and Lack of Green Spaces:** Rapid urbanization and loss of green spaces have led to the [urban heat island effect](#), increasing temperatures and energy demand.
 - **Example:** The extreme [heatwave](#) in Delhi has driven the city's power demand to a record high of over **8,000 megawatts in May 2024**.
- **Rising Cases of Fire Hazards:** [Urban fires](#) pose significant risks due to the lack of proper fire safety infrastructure and awareness.
 - The **high density of these areas**, coupled with narrow access routes, exacerbates fire hazards, making it difficult for emergency services to respond effectively.
- **Urban Flooding and Drainage Infrastructure:** Inadequate stormwater drainage systems and encroachment on natural water bodies lead to frequent [urban flooding](#) during monsoons.
 - India has experienced major floods in recent years, notably in **Hyderabad (2020 and 2021)**, **Chennai (November 2021)**, **Bengaluru and Ahmedabad (2022)**, **parts of Delhi (July 2023)**, and **Nagpur (September 2023)**, forcing many residents to evacuate.

What are Major Government Initiatives Related to Urban Areas?

- [Smart Cities](#)
- [AMRUT Mission](#)
- [Swachh Bharat Mission-Urban](#)
- [Pradhan Mantri Awas Yojana-Urban](#)
- [Aspirational District Programme](#)
- [Deen Dayal Antyodaya Yojana - National Urban Livelihood Mission \(DAY-NULM\)](#)

What Strategies Should be Implemented to Revitalize India's Urban

Landscape?

- **Distributed Waste-to-Energy and Decentralised Waste Management Systems:** Incentivizing community-based waste management initiatives and promoting **public-private partnerships** for waste collection, sorting, and processing.
 - Encouraging the development of small-scale waste-to-energy plants that convert municipal solid waste into renewable energy sources, such as **biogas or electricity**.
 - Incentivize community-based waste management initiatives and promote public-private partnerships for waste collection, sorting, and processing.
- **Smart Water Management and Recycling Infrastructure:** Deploying smart water metering and monitoring systems to **detect leaks, optimize water distribution, and promote efficient water usage**.
 - Investing in **advanced wastewater treatment and recycling facilities** to recycle and reuse treated wastewater for non-potable purposes, such as industrial cooling, landscaping, and flushing.
- **Urban Digital Twins and Predictive Modeling:** Developing digital twins of urban areas, which are virtual replicas of cities, to simulate and analyze various scenarios, infrastructure projects, and environmental impacts.
 - Leveraging predictive modeling and artificial intelligence to **optimize urban planning, resource allocation, and infrastructure management** based on real-time data and simulations.
 - Integrating digital twins with urban governance platforms to enable data-driven decision-making, citizen engagement, and **participatory urban planning processes**.
- **Sponge City Concept and Permeable Urban Landscapes:** Implementing the "Sponge City" concept, which involves the **integration of permeable pavements, green roofs, rainwater gardens**, and other water-absorbing features into urban landscapes.
 - Encouraging the preservation and restoration of **natural water bodies, wetlands, and floodplains** through **Blue-Green Infrastructure** within urban areas to enhance water retention and flood mitigation.
 - Incorporating biophilic design principles into urban architecture and infrastructure, bringing nature into the built environment. **Singapore's Jewel Changi Airport** is a notable example of biophilic design.
- **Smart City Infrastructure:** Democratizing smart city technologies, such as **intelligent traffic management systems, smart grids, and IoT-enabled public services**, to improve efficiency, reduce carbon emissions, and enhance the quality of life for citizens.
- **Real-time Fire Risk Assessment and Alert System:** Deploying sensors to monitor air quality, temperature, and humidity in high-risk areas especially **Public Buildings**, integrating with weather and smart meter data.
 - Using **Artificial Intelligence** to assess fire risk and trigger alerts to residents, firefighters, and authorities via public address systems and mobile alerts.
- **Cybersecurity and Digital Infrastructure Resilience:** Investing in robust cybersecurity measures, including advanced **encryption, access controls, and real-time threat monitoring**, to protect critical urban digital infrastructure from cyber threats.
 - Implementing **redundancy and failover mechanisms** in digital infrastructure to ensure continuity of essential services during cyber attacks or system failures.

Drishti Mains Question:

How can India revitalise its urban landscape to ensure sustainable development and address the challenges of rapid urbanisation?

UPSC Civil Services Examination Previous Year's Question (PYQs)

Prelims

Q. As per the Solid Waste Management Rules, 2016 in India, which one of the following statements is correct? (2019)

(a) Waste generators have to segregate waste into five categories.

(b) The Rules are applicable to notified urban local bodies, notified towns and all industrial townships only

(c) The Rules provide for exact and elaborate criteria for the identification of sites for landfills and waste processing facilities.

(d) It is mandatory on the part of the waste generator that the waste generated in one district cannot be moved to another district.

Ans: (c)

Mains

Q. The frequency of urban floods due to high intensity rainfall is increasing over the years. Discussing the reasons for urban floods, highlight the mechanisms for preparedness to reduce the risk during such events. **(2016)**

Q. Do government's schemes for up-lifting vulnerable and backward communities by protecting required social resources for them, lead to their exclusion in establishing businesses in urban economies? **(2014)**

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